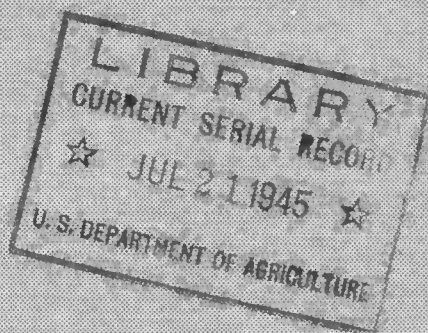


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Home-made **JELLIES** **JAMS** and **PRESERVES**



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HOME-MADE JELLIES, JAMS, and PRESERVES

by

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SUGAR PRESERVATION of fruit has been for many centuries an important culinary art. Before anything was known about micro-organisms and their influence on food spoilage, housewives put up fruits with sugar according to rule-of-thumb methods, which under normal conditions brought passable results.

Today more uniformly excellent products are possible because so much more is known about fruits and about cooking processes. Research has revealed important facts about the role of pectin, acids, and mineral salts in making jellies and other fruit products. The effect of different proportions of sugar and of different cooking methods on the juice and texture of the fruit is more clearly understood.

Out of these findings have come basic yet flexible rules for the preservation of fruit with sugar. The perfect jelly—tender, quivering, translucent, and retaining the characteristic flavor of the fruit from which it came—and the perfect preserves—clear and tender, yet holding their shape—are evidence of careful adherence to known principles.

During the cooking process the combination of heat, sugar, and acid is such as to destroy any micro-organisms present in the fruit. Unless the product is properly stored, however, it may spoil later. The old custom was to put preserved fruits down in tightly covered stone crocks, which served the purpose fairly well through the winter months. This storage method did not keep out the air with its destructive micro-organisms, but the concentration of sugar was so high that the preserves generally did not spoil. Sometimes, though, when the air was moist, surface molds developed, and yeasts caused the preserves to ferment. The old-time jellies and jams were put up in glasses of various descriptions with papers tied or pasted over the top. They too suffered from drying out or from absorbing moisture from the air. Today with storage in smaller quantities and in airtight containers a high standard of excellence can be maintained.

All these preserved fruit products add variety as well as energy value to a meal. They often furnish the needed accent of color and flavor to meats, vegetables, and cereal foods. Currants, strawberries, and other fruits not well adapted to canning make excellent jelly and jam.

These fruit products thus provide a way not only of adding to the family's own food supply, but also of turning the surplus from the home orchard and garden into cash at the roadside market.

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PRESERVATION OF COLOR AND FLAVOR

The ideal fruit product retains the color and much of the flavor characteristic of the fresh fruit. Since prolonged exposure to heat is harmful both to color and to flavor, the present technique reduces cooking time to the minimum.

The color substances in fruits are mostly carotinoids (the yellow to orange color range) and anthocyanins (the reds and blues). The yellow to orange colors are fairly stable, but the reds and blues tend to change to dull browns when the fruits are overcooked.

Tannins, present in fruits in varying amounts, tend to break down during cooking and discolor products made of light-colored fruits. The dark brown of overcooked apple butter, for instance, is caused in part by this change in the tannin.

The substances that give fruits their flavor are broken down by long cooking or are driven off in steam. The longer a fruit product is cooked, the greater the loss of the volatile flavoring substances and the greater the change in flavor. In addition, overcooking may caramelize some of the sugar and thus bring about further undesirable color and flavor changes.

A certain amount of cooking is necessary, however, both to concentrate the sirup and change the texture of the fruit tissues. At the same time the sugar is changed to a form that does not crystallize easily.

CHANGES IN FRUITS CAUSED BY HEAT AND SUGAR

The character and degree of the change in texture varies with the amount of sugar in the sirup, the cooking technique, and the kind of cellulose tissue in the fruit. The cellulose tissue is the chief substance that forms the framework of the fruit. Both the ripening process and cooking soften this cellulose framework.

When sugar is added to fruit without heat the fruit loses juice, shrinks somewhat, and becomes slightly more firm. Little if any sugar is absorbed by the raw fruit under these conditions. But cooking changes the cell walls of the fruit so that sugar can penetrate it more rapidly. The passage of sugar sirup into the fruit is at best a slow process, however. So after fruit has been heated in the sirup, it is sometimes desirable to let it stand for a time "to plump," before the final cooking.

When fruit is cooked in too concentrated a sirup without preliminary softening, it tends to shrink too rapidly, becomes tough, and fails to regain its shape on standing in the sirup. For example, take firm fruits for making preserves. Unless the cooking starts in sirup thin enough to allow the cellulose to soften before the sirup becomes concentrated, the fruit will be tough and hard. The less firm fruits, such as berries and peaches, need the firming effect of the sugar to help preserve their shape. So they are cooked at once in a heavy sirup or are allowed to stand overnight in sugar. In making jams the cellulose framework is so well broken up at the beginning of the process that the fruit can be mixed with the sugar and cooked at once.

Fruit juice for jelly making must contain a substance called pectin. Pectin, when combined with the right proportion of sugar in the presence of acid and mineral salts precipitates and forms jelly.

Pectin is found in greatest abundance in slightly underripe fruits. It occurs chiefly in the pulp near the skin, in the cores, and around the seeds. To extract the pectin it is necessary to boil fruit until soft, but this should be done as rapidly as possible. Prolonged cooking destroys the jellying power of pectin, especially in very acid fruits. For the same reason, no more water than neces-

sary should be added to fruit in extracting pectin, and the fruit juice should not be concentrated before it is combined with the sugar. Sugar tends to prevent the destruction of the pectin, but it must be used in proper balance with the pectin and the acid to produce a jelly of the most desirable texture. If too little sugar is used the jelly is tough, and too much sugar makes it sirupy.

Several acids occur naturally in fruits and vary in kind and quantity in the different fruits. Just as in the case of pectin, the acidity of fruit changes during growth and ripening. As the fruit reaches full maturity the quantity of acid decreases. The presence of acid in the fruit juice makes jelly formation possible. An increase of acid within certain limits decreases the amount of sugar required.

Another factor important in jelly making is the presence of mineral salts in the fruit juice. The salts affect the acidity of the juice. The kind and the quantity of mineral salts influence also the ease with which the pectin is precipitated by the sugar. All of these factors in jelly making are interdependent.

JELLIES

A fruit jelly is a semisolid mass which holds its shape when turned out onto a plate but quivers when the plate is moved. It should have the color and the delicate flavor characteristic of the fruit from which it is made. Usually it is translucent. Jelly should be so tender that it cuts easily, yet breaks with a sharp cleavage line and shows clean-cut faces.

FRUITS FOR JELLY MAKING

Two essentials a fruit must have and in proper proportions if it is to be converted into jelly—pectin and acid. These change with the maturity of the fruit, both decreasing as the fruit ripens. Hence, for the best results use a mixture of slightly underripe and ripe fruit, the underripe to furnish pectin and acid and the ripe to contribute flavor and color. The following fruits at the proper stage of maturity have both of these in sufficient quantity: Tart apples (such as Winesap), blackberries, crab apples, cranberries, currants, gooseberries, grapes (wild native grapes and the cultivated varieties such as Concord), plums (wild plums and the Wild Goose type of cultivated varieties), quinces (tart varieties), raspberries (both black and red).

Some fruits, such as ripe apples, most plums, and grapes of the European type cultivated on the Pacific coast, contain sufficient pectin but lack the acidity necessary for jelly making. Other fruits contain enough acid but have insufficient pectin. Sometimes fruit rich in pectin is combined with one rich in acid in order to get the proper proportions for jelly. Combinations of fruits also result in interesting blendings of flavors or colors. The following combinations are suggested: Crab apple with grape, currant with raspberry, gooseberry with raspberry, tart apple with plum, tart apple with quince, quince with cranberry.

If no pectin-rich fruit is available to combine with one lacking in pectin, this essential ingredient may be added in the form of an extract prepared either commercially or in the home. If acid is needed, lemon juice or powdered citric acid will supply it.

Jelly-making qualities in fruits are affected also by storage, variety of fruit, and conditions of production such as temperature, rainfall, and soil.

EQUIPMENT FOR JELLY MAKING

The jelly-making equipment includes pans, colander, scales and measuring cups, large kettles, and long-handled spoons. The jelly bag may be of Canton flannel

with the nap side in, or of two or three thicknesses of good-quality cheesecloth, or it may be a sugar bag. Some kind of support for the bag is also needed. The pan for cooking the juice to the jelly stage should be broad and flat-bottomed, so as to permit rapid evaporation of excess liquid.

Low, broad jelly glasses fitted with tin friction-top lids are most satisfactory for home storage, partly because they assure a product of attractive shape and convenient size for serving. If the jelly is to be much handled as in shipping, however, or if there is no cool, dry place for storage, containers made airtight with rubber or with composition gaskets are needed to prevent spoilage.

A large pan in which to sterilize the glasses, tongs with which to lift them, and a tray to hold them while the jelly is setting are also desirable. Paraffin and a pan for heating the paraffin are required at the last.

PREPARING THE FRUIT

After selecting a mixture of slightly underripe and ripe fruit, prepare it in small lots at a time, so that the jelly process may be carried through promptly. With berries, 6 quarts is a good quantity; with such fruits as apples or grapes, 8 pounds. Two pounds of prepared fruit yield approximately a pint of juice. And a pint of fruit juice made up with an equal quantity of sugar yields about 1½ pints or four average-sized glasses of jelly.

Look over the fruit and discard any damaged parts. Wash thoroughly, using a brush for hard fruits, such as crab apples, quinces, and apples. If they show spots of spray residue they should be pared, since washing with water may not completely remove poisonous spray materials that have dried on fruits. Discard the stems and the blossom ends of apples, crab apples, and quinces. This is particularly important in sprayed apples, as the spray residue concentrates at these points. Cut the fruit into small uniform pieces, but do not remove the cores, as these contain considerable pectin.

Wash berries quickly and carefully, to prevent loss of juice. Lift the fruit out of the water instead of pouring the water off, as most of the dirt settles to the bottom of the container. Drain. Remove the caps and the stems of berries. Leave the stems on currants, the skins on grapes, plums, quinces, and apples, with the exception noted above.

EXTRACTING THE JUICE

Boiling the fruit is necessary to extract the pectin in the juice. With normally juicy fruits no more than the minimum of water indicated in table 1 should be added. Any excess of water must be boiled away, and prolonged boiling tends to destroy pectin, flavor, and color. Nevertheless, if the fruit lacks normal juiciness, as when grown under drought conditions, the proportion of water may need to be doubled and the time of boiling increased so as to soften the fruit.

Boil the fruit in a broad, flat-bottomed kettle, and stir to prevent scorching. Crush soft fruits to start the flow of juice. Count time only after the fruit begins to boil. Berries, currants, and grapes need 5 to 10 minutes to cook soft, and apples and quinces 20 to 25 minutes. The time varies with the firmness of the fruit.

Pour the hot cooked fruit at once into a jelly bag. Let the juice drip into a bowl. When the dripping has almost ceased, press the jelly bag to obtain all the juice. Clarify the juice by re-straining through a fresh jelly bag wrung from hot water.

Some fruits, such as currants, crab apples, and wild grapes, are so rich in pectin and acid that two extractions of juice can be made from the same lot of fruit. First- and second-extraction juices may then be combined or made into jelly separately.

TABLE 1.—Proportions of water to fruit, and of sugar to fruit juice in making jellies

Kind of fruit	Quantity of water to each pound of prepared fruit (for extraction of juice)	Time of boiling fruit to extract juice	Quantity of sugar to each cup of fruit juice
	Cup	Minutes	Cup
Apples ¹	1.....	20 to 25	$\frac{3}{4}$
Crab apples ²	1.....	20 to 25	1
Blackberries.....	(Firm fruit, $\frac{3}{4}$	5 to 10	$\frac{3}{4}$ to 1
Black raspberries.....	(Very soft fruit, none.....	5 to 10	$\frac{3}{4}$ to 1
Cranberries.....	do.....	5 to 10	1
Currants.....	$\frac{3}{4}$	5 to 10	$\frac{3}{4}$
Gooseberries.....	$\frac{3}{4}$ or none.....	5 to 10	1
Grapes such as Concord ³	$\frac{3}{4}$ or none.....	5 to 10	$\frac{3}{4}$ to 1
Grapes, wild.....	1.....	5 to 10	1
Plums, Wild Goose type.....	$\frac{3}{4}$	15 to 20	$\frac{3}{4}$
Quinces.....	$\frac{3}{4}$	20 to 25	$\frac{3}{4}$
Red raspberries.....	None.....	5 to 10	1

¹ To make mint-flavored apple jelly, after the jelly stage is reached and just before the sirup is ready to pour into the glasses, tint with green food coloring and add a few drops of essence of spearmint or peppermint.

² For spiced crab apple jelly, cook with the sugar and the juice from 8 pounds of fruit, four 2-inch pieces stick cinnamon, and 12 whole cloves tied loosely in a cheesecloth bag.

³ For spiced grape jelly, cook 6 pounds of Concord grapes with 1 cup of vinegar, 1 tablespoon of cloves, and 5 pieces of 1-inch stick cinnamon. Strain. Proceed with juice as for grape jelly.

To make the second extraction, turn the pomace back into the kettle as soon as the juice of the first cooking ceases dripping. Barely cover the pomace with water, bring gradually to a boil, and simmer 15 to 20 minutes, stirring frequently. An asbestos mat beneath the kettle will help prevent burning. Extract the juice as at first.

A second-extraction product is wholesome and may be entirely satisfactory for home use. However, such a product will have a lower percentage of fruit solids than a true jelly and, if sold in interstate commerce, must be labeled "Imitation Jelly," according to the regulations of the Federal Food and Drug Administration.

The juice from cultivated slip-skin grapes, such as the Concord, requires special treatment to prevent the formation of cream of tartar crystals (potassium acid tartrate) in the jelly. These crystals are harmless but give the jelly an objectionable, gritty texture. One preventive method is to let the grape juice stand overnight in a cold place to permit the precipitation of crystals. The next morning dip the juice out carefully and re-strain it. The crystals remain with the sediment on the bottom and sides of the container. Another method is to can the juice and allow it to stand for some time for crystals to form before making up the jelly. Still another is to combine the grape juice with other fruit juices.

So far science has developed no home process for determining with accuracy how much pectin there is in a given quantity of fruit juice. The jelly maker may add alcohol or certain of the metallic salts, such as Epsom salts, to some of the juice and thereby precipitate out a gelatinous mass, some of which may be pectin. But unfortunately other substances are precipitated along with the pectin. So this test is only an approximate guide to the amount of pectin present in the fruit.

The jelmeter is a graduated glass tube with a given opening devised to measure the relative viscosity of a fruit juice. The rate of flow of the juice through the tube is considered a rough measure of the jelling power of the juice and an index of the quantity of sugar to be used with that juice.

PREPARING THE CONTAINERS

Before proceeding with the cooking of the juice, wash the jelly glasses and covers. Place the glasses on a rack in a pan, cover them with cold water, and boil them for 15 to 20 minutes. Keep hot until used. As the glasses are removed for one lot of jelly, add more in order to keep a continuous supply sterilized. To prevent breaking, plunge the glass into the boiling water with a scooping motion so that the water reaches the inside and outside of the glass at the same time.

COMBINING SUGAR AND JUICE

In order to have the best possible product, work with small lots of juice at a time—not more than 8 cups.

Measure the sugar and the juice accurately. Use $\frac{3}{4}$ to 1 cup of sugar to each cup of juice (table 1). Use a good grade of granulated white sugar. Repeated tests have shown that refined beet and cane sugar produce exactly the same results. For second-extraction juices of crab apples, currants, and wild grapes, allow three-fourths of a cup of sugar to each cup of the juice, instead of 1 cup as with the first-extraction juice. If the two extractions are to be combined, use the proportion of sugar given in table 1 for first extractions. Combine the sugar and fruit juice without preheating.

If fruit is so low in acid as to make jelly formation doubtful, add either strained lemon juice or powdered citric acid. One tablespoon of the lemon juice for each cup of the fruit juice, or 1 to $1\frac{1}{2}$ teaspoons of the powdered citric acid for 6 cups of juice will generally give sufficient acidity. Sirup that has failed to make jelly because of lack of acidity may be cooked again to the jelly test with lemon juice or citric acid added and jelly obtained.

BOILING TO THE JELLY STAGE

Heat the fruit juice and the sugar quickly to boiling, using a large flat-bottomed pan that permits rapid evaporation. Stir only until the sugar is dissolved—no longer.

Boil rapidly until the jelly stage is reached. To test whether or not this moment has arrived, dip a large spoon into the boiling sirup and lift the spoon so that the sirup runs off the side. When the sirup no longer runs off the spoon in a steady stream but separates into two distinct lines of drops, which "sheet" together, stop the cooking.

Allow the hot sirup to stand in the kettle while the jelly glasses are lifted from the boiling water, drained, and placed on a tray. Remove any scum from the hot sirup.

If only a small quantity of jelly has been made, pour the sirup directly into the glasses to within one-fourth inch of the top. With larger quantities pour the sirup into a quart measure and fill the glasses without splashing or dripping onto the rim. The glass must be clean and dry in order to get a good paraffin seal later. Place the tin covers on the jelly glasses at once, and do not disturb the jelly while it is setting.

A thermometer is of some value to the person who is making a considerable quantity of juice into jelly, though it can only supplement, not displace, the jelly test.

To use the thermometer, take a test 2-cup portion of the juice with the required amount of sugar. Boil the sirup in a small pan until it reaches the sheeting-off stage, and while it is still boiling note the temperature reading. If this test portion of juice jells, the remainder of the juice may then be safely

cooked to that temperature and poured into the jelly glasses without using the sheeting-off test for the sirup.

The thermometer technique, however, is very exacting. Unless the instrument is properly used, it is valueless. The test portion of sirup must be boiled in a pan of such size and shape that the entire bulb of the thermometer is surrounded by sirup, not a part of it in foam, and the bulb must not touch the bottom nor the side of the pan. The thermometer must be held vertically and must be read with the eye on a level with the mercury column, and while the bulb is in the boiling juice.

Even when the thermometer reading is correctly taken so that no sheeting-off test is necessary for the remainder of a quantity of juice, that juice must still be boiled in small lots in order to assure a good jelly product. This temperature, of course, may not lead to jelly formation with a different lot of juice.

SEALING AND STORING

As soon as the jelly is firm and well set, it is ready to seal. The inside rims of the glasses must be clean, dry, and free from jelly drops. Wiping the inside rim of the glass with a cloth dipped in alcohol helps to insure a perfect seal. Melt the paraffin in a small saucepan over low heat. Pour enough hot paraffin onto the top of each glass to cover the jelly well. Rotate the glass before the paraffin hardens so that it will run up to the rim and form a good seal. Wipe dry the inside of the tin cover to prevent rusting and replace on the glass. Label the glass with the name of the fruit and the date of making. Store in a cool, dry place.

CANNING JUICES FOR LATER JELLY MAKING

Fruit juice may be canned if inconvenient to make it into jelly when first extracted. Jelly from juice stored 6 months may have as good texture as that made from the fresh juice, though the color and flavor may not be quite so good, especially in the case of the red fruits.

When such canning is desirable, fill hot sterilized glass jars with the juice, without reheating it. Partially seal. Place on a rack in a water bath at 185° F., or simmering temperature. The water should reach an inch or two above the jars. Bring the water again to simmering temperature and keep it there for 20 minutes if the jars are of pint or quart size. Complete the seal at once and store the jars in a cool, dry place protected from light.

JELLY FAILURES AND SPOILAGE

As each lot of fruit presents its own special problems, the jelly maker may sometimes have inferior products or failures. Crystals may form in the jelly, or it may "weep," or be tough or cloudy or fail to form the characteristic jelly texture.

Sugar crystallization may result from any one of four different causes: An excess of sugar, insufficient acid, overcooking of the jelly, or too great a delay in sealing it. Cream of tartar crystals in grape jelly may be greatly reduced if not prevented entirely by letting the juice stand for several hours in a cold place before making it into jelly (p. 5).

The "weeping" of jelly, technically known as synaeresis, occurs in jellies from cranberries, currants, and other fruits that are high in acid. This weeping is supposed to be caused by a contraction of the jelly mass which squeezes out liquid, similar to the separation of whey from the curd in sour milk, but there may also be other factors as yet unknown.

Cloudiness may result from imperfect straining, and usually occurs with the red juices. Re-straining a juice without pressure brings a lower yield but insures a clear product.

Failure to form jelly is caused by an improper balance of pectin, sugar, acid, and mineral salts. This improper balance may have come about in various ways. The fruits used may have lacked sufficient pectin or acid, or both essentials. Overcooking may have destroyed so much pectin that a gummy mass was formed instead of a jelly. Undercooking will also result in failure to get a jelly formation, because of insufficient concentration. Too much water may have been used for the extraction of the juice, so that the proportion of sugar is too great for the pectin; also the long cooking time required for evaporation is likely to destroy some of the pectin.

Mold or fermentation in jelly often results from storage in a warm or a damp place. The best paraffin seal and tin friction-top lid are not adequate protection unless the jelly is kept cool and dry. If moisture collects beneath the paraffin, it may break the seal and permit the entrance of molds and yeast spores. If the jelly must be stored in a warm or a moist atmosphere, it should be in a container made airtight with a rubber or a composition gasket. Other causes of spoilage are failure to sterilize the glasses and imperfect sealing with paraffin.

PECTIN EXTRACTS

Pectin extracts and powders may be used to prepare jelly from well-flavored but pectin-poor fruits which could not otherwise be so utilized. Both extracts and powders may be bought in commercial form. The extract may be made at home.

Commercially prepared pectins make it possible to retain a higher percentage of water in the jelly than would otherwise be feasible, so that the jelly maker may be tempted to decrease the proportion of fruit juice. If less than the normal proportions of fruit juice and sugar are used, or if too little boiling has been done to bring the jelly to the proper concentration, the product is not characteristic. If it is to enter into interstate commerce it must be labeled "Imitation Jelly" to conform with the Federal Food and Drugs Act. This regulation applies also to preserves and jam thus made. Some States also require this labeling for products sold within State boundaries.

Home-made pectin extracts may be similarly misused, though there is much less likelihood, as they are less concentrated than the commercial extracts.

Pectin extracts may be made at home from skins, cores, and pulp of apples, or from the white peel of oranges and lemons, all of which contain abundant pectin. These extracts must be processed if they are to be held for future use. Directions for making these extracts and using them in typical products follow.

HOME-MADE APPLE PECTIN EXTRACT

Select firm apples such as the Ben Davis and Arkansas (Mammoth Black Twig). Summer apples do not have sufficient pectin for such use. Sound culls or apples with surface blemishes are usable. Scrub the apples and cut out the imperfect spots, then slice thin, retaining skins and cores (p. 4).

For each 4 pounds of prepared apples use $4\frac{1}{2}$ pints of water for the first extraction. Place the apples and the water in a large pan so as to allow rapid boiling. Cover and boil 20 minutes. Strain through four thickness of cheese-cloth until the juice stops dripping. Repeat the process, adding the same quantity of water and boiling and straining as before. The two extractions should amount to 3 quarts. Some workers recommend adding a little lemon juice to the water in order to increase the amount of pectin obtained.

Boil this juice in a pan large enough so that the liquid will be 2 inches deep. Boil rapidly until the juice is reduced to a fourth of its original volume. This usually requires from 30 to 40 minutes. There should be $1\frac{1}{2}$ pints of the concentrated apple juice or pectin extract.

If the extract is not to be used at once, pour it while hot into hot sterilized half-pint jars, partially seal, process on a rack in a boiling-water bath for 20 minutes, complete the seal, and store in a cool, dry place. Once the canned extract is opened, it must be used immediately, as it will not keep.

HOME-MADE ORANGE OR LEMON PECTIN EXTRACT

Select oranges and lemons with thick skins. Wash the fruit and remove the yellow rind, using a stainless steel knife in order not to discolor the peel.

For each pound of the fresh white peel, use 2 quarts of water and 1 tablespoon of tartaric acid. Add the acid to the water and stir until dissolved. Put the fresh peel through a meat grinder, using the coarse plate. Place the ground peel in a large flat-bottomed pan to permit rapid boiling and cover with the acid solution. Allow the mixture to stand for an hour or two. Measure the depth of the mixture in the pan. Boil rapidly and stir constantly until the volume is reduced to half. Strain through four thicknesses of cheesecloth.

Make two more extractions in this same way, using 2 quarts of water, and 1 tablespoon of tartaric acid to the pomace each time. It is not necessary, however, for the mixture to stand after the first time.

Combine the three extractions. There should be about $2\frac{1}{2}$ pints. If the product is to be kept for future use, process it in a boiling-water bath as directed for the apple pectin extract.

USE OF PECTIN EXTRACTS IN JELLIES

The following are typical recipes using home-made pectin extract with fruit juices that lack this substance naturally.

Cherry Jelly With Added Pectin

2 pounds sour red cherries	$\frac{1}{2}$ cup apple or lemon pectin extract,
$\frac{1}{2}$ cup water	or $\frac{3}{4}$ cup orange pectin extract
2 cups sugar	

Wash the cherries thoroughly and remove the stems. Add the water to the cherries, boil for 10 minutes, and strain through a jelly bag. (This yields about 2 cups of juice.) Mix the 2 cups of juice with the sugar and the pectin extract. Cook until the jelly stage is reached and pour into hot sterilized glasses.

Strawberry Jelly With Added Pectin

2 pounds strawberries	$\frac{3}{8}$ cup apple or lemon pectin extract,
2 tablespoons water	or $\frac{3}{4}$ cup orange pectin extract
2 cups sugar	

Wash the berries thoroughly and remove the caps. Add the water to the berries, boil rapidly for a few minutes until the berries are soft, and strain through a jelly bag. (This yields about 2 cups of juice.) Mix the 2 cups of strawberry juice with the sugar and the pectin extract. If the berries are especially lacking in acid, add 1 teaspoon of lemon juice to each cup of the juice. Boil rapidly until the jelly stage is reached and pour into hot sterilized glasses.

PRESERVES

A fruit preserve is a product consisting of whole small fruits or pieces of larger fruits cooked in a sirup until clear and somewhat translucent and stored in the thick sirup or jellied juice. The standard proportion of sugar varies from $\frac{3}{4}$ to 1 part by weight of sugar to 1 part by weight of the prepared fruit.

To be suitable for preserving, fruits must hold their shape and color, as for example cherries, citron melon, peaches, pears, damson plums, quinces, strawberries, watermelon, and tomatoes. Extensive experiments are being carried on to develop varieties of peaches, strawberries, and other fruits especially adapted for this purpose and to learn what varieties are best.

Fruit for preserving should be in a firm-ripe rather than a soft-ripe stage. It should be uniform in size or in uniform pieces so as to cook evenly.

For good results in making preserves it is necessary to use weights rather than measurements. The weight of a quart of fruit varies considerably with the kind, with the way it is packed, and also with the shape and the size of the pieces. A good product is more easily obtained when not more than 6 or 8 pounds of fruit are handled at one time.

Quinces and other firm fruits make better preserves when the cooking is started in a thin sirup. This allows the fruit to cook tender before the sirup becomes concentrated. Other methods are to steam the fruit before putting it into the sirup or to precook it in water before adding the sugar. These tend, however, to overcook the fruit or draw out too much of the fruit flavor into the sirup. Neither is it desirable to start the cooking of such fruits in a heavy sirup; it causes them to become tough.

The juicy fruits fall into two classes: The very tender fruits like strawberries, which are likely to go to pieces during cooking; and plums and other fruits with firm skins. The cooking of these firm-skin fruits may begin in a heavy sirup, since the sirup is thinned down rapidly by the fruit juices that come out during the cooking.

It is better to allow tender fruits to stand overnight in sugar. Though the fruit loses juice and shrinks somewhat, it becomes slightly more firm so that it will be less likely to cook to pieces. Also no water need be added then, as the fruit juice supplies enough liquid to prevent the sugar from scorching, and the cooking time is shortened because there is less liquid to be evaporated. Or the fruit may be cooked without this preliminary treatment and have only enough water added to the sugar to prevent scorching as the mixture begins to cook.

Preserves are cooked until the sirup is quite thick and the fruit is fairly translucent. The temperature at which this concentration is reached varies from 217° to 223° F., but the temperature test is not always a reliable guide. The temperature varies widely, depending on where the thermometer bulb is located in the boiling mass.

Glass fruit jars are the most satisfactory containers for preserves. The jars should be filled three-fourths full with the preserved fruit, and then enough of the sirup added to completely fill the containers. They should be sealed while hot.

Directions for handling the common kinds of fruits follow.

CHERRY PRESERVES

Select sour red cherries. Discard any imperfect ones. Wash and drain. Remove stems and pits without tearing the fruit needlessly. For each pound of pitted cherries use $\frac{3}{4}$ to 1 pound of sugar. Combine the fruit and sugar in alternate layers and let them stand 8 to 10 hours or overnight before cooking. Or, if

preferred, add the sugar and one-fourth cup of water for each pound of the fruit and cook it at once.

Whether or not the fruit has been allowed to stand with the sugar, it must be stirred carefully while it is being heated to the boiling point. Boil rapidly until the sirup is somewhat thick, taking care to prevent scorching. Pour at once into hot sterilized jars and seal.

CITRON MELON PRESERVES

Select a slightly underripe melon, wash, and pare off the green rind. Cut the melon into half-inch slices and separate the inner and outer portions. These two portions must be handled separately throughout the preserving process because of the difference in their texture, and they should be packed in separate jars.

Cut each portion into half-inch cubes and remove the seeds. Weigh the prepared fruit, and to each pound allow $1\frac{1}{2}$ quarts of water, three-fourths pound of sugar, one-half lemon thinly sliced, and, if desired, one or two pieces of gingerroot. Boil the citron melon in the water for about 25 minutes, or until tender. Add the sugar and boil for 1 hour. Add the lemon and the ginger and continue to boil until the sirup "sheets off" the spoon in the jelly test. Fill hot sterilized jars with the preserves and seal.

Citron melon preserves may be spread out to dry and later used in fruit cakes, or as a substitute for the commercial crystallized citron.

PEACH PRESERVES

Any variety of white or yellow peach of good dessert quality will make satisfactory preserves if chosen at the firm-ripe stage.

Wash and pare the peaches. Either leave them whole or cut them into uniform pieces such as halves, quarters, or eighths. To each pound of prepared fruit allow $\frac{3}{4}$ to 1 pound of sugar. Combine the fruit and the sugar in alternate layers and let stand 8 to 10 hours or overnight before cooking. Or add the sugar and one-fourth cup of water for each pound of the fruit and cook at once. In either case stir carefully while heating to boiling. Boil rapidly until the sirup is somewhat thick, stirring constantly to prevent burning. Pour at once into hot sterilized jars and seal.

PEAR PRESERVES

The Kieffer pear is a variety commonly used for preserving because it holds its shape and has a good flavor. It is important to allow the fruit to reach the firm-ripe stage. If possible, store Kieffer pears for 2 or 3 weeks at 60° to 65° F. to obtain the best qualities for preserve making.

Wash, pare, and cut the fruit into uniform pieces, as quarters or eighths, depending upon the size of the fruit; then core. To each pound of prepared fruit allow $\frac{3}{4}$ to 1 pound of sugar. Combine the fruit and the sugar in alternate layers and let stand 8 to 10 hours or overnight before cooking. Or cook at once with the sugar and one-fourth cup of water to a pound of fruit. Whichever method is used, stir carefully while heating to the boiling point. Boil rapidly until the sirup is somewhat thick, stirring constantly to prevent burning. Pour at once into hot sterilized jars and seal.

GINGER PEAR PRESERVES

A modification of pear preserves may be made by the addition of gingerroot and lemon. After paring and coring the fruit, cut it into small uniform pieces. For each pound of fruit use one-half to three-fourths pound of sugar, one to two

pieces of gingerroot, and one-half lemon thinly sliced. Combine the sliced pears and sugar in alternate layers and let them stand 8 to 10 hours or overnight before cooking. Boil the lemon for about 5 minutes in only enough water to cover. Add the lemon with what water remains and the gingerroot to the pear and sugar mixture. Boil rapidly and stir constantly until the fruit is clear and of a rich amber color. Pour at once into hot sterilized jars and seal.

DAMSON PLUM PRESERVES

Wash the fruit, drain, and prick each plum in three or four places. For each pound of fruit use one-half cup of water and $\frac{3}{4}$ to 1 pound of sugar. Dissolve the sugar in the water and bring to boiling. Add the plums and boil gently until the fruit is clear and tender and the sirup sheets from a spoon. Pour into hot sterilized jars and seal.

QUINCE PRESERVES

Allow the fruit to ripen until it is yellow but still firm. Wash the fruit, pare, cut into quarters, and core. For each pound of prepared fruit use $1\frac{3}{4}$ cups of water and three-fourths pound of sugar. Dissolve the sugar in the water and boil for 5 minutes. Add the fruit and boil slowly for 1 to $1\frac{1}{2}$ hours. Stir occasionally to prevent burning. As soon as the fruit becomes tender and of a clear, reddish color and the sirup reaches the jelly stage, pour into hot sterilized jars and seal.

STRAWBERRY PRESERVES

The color and flavor of strawberries are easily destroyed by heat. Hence, in making preserves it is well to cook them only a short time.

Method 1.—Select large, firm, tart berries. Wash, drain, and remove caps. For each pound of fruit use 1 pound of sugar. Combine the fruit and the sugar in alternate layers and let stand 8 to 10 hours or overnight before cooking. While heating to boiling, stir carefully. Boil rapidly for 15 to 20 minutes or until the sirup is somewhat thick, taking care to prevent burning. Remove the scum. Pour at once into hot sterilized jars and seal.

Method 2.—In this method the smaller, less-perfect berries are picked out to be used for juice. Crush these berries, then stir them while cooking them for about 3 minutes. Strain. To each pound of choice prepared berries allow one-half cup of this juice and 1 pound of sugar. Add the sugar to the hot juice, stir, and continue to heat slowly until the sugar is entirely dissolved. Drop the berries into the sirup, simmer for 3 to 5 minutes, then boil rapidly for 10 to 15 minutes, or until the fruit is somewhat clear. Remove the scum. Allow the preserves to stand about 8 hours or overnight in a glass or porcelain bowl. Fill hot sterilized jars three-fourths full with the drained berries, without reheating them. Boil the sirup rapidly until fairly thick, or to 221° F. Pour the hot sirup over the berries and seal.

Method 3, sun preserves.—Strawberry sun preserves can be made only if there is sufficiently hot sunshine to cause rapid evaporation.

To each pound of choice prepared strawberries allow 1 pound of sugar and 1 teaspoon of lemon juice. Prepare a sirup from strawberry juice and sugar as described under method 2. Add the berries to the sirup and simmer for 3 to 5 minutes. Drain the berries from the sirup and place about an inch apart on shallow enameled pans or china platters. Boil the sirup until it is fairly thick; that is, for about 10 minutes, or to 221° F. Remove the scum, add the lemon juice, and pour the sirup in a thin layer over the berries. Cover with window

glass propped up about one-fourth inch from the pans. Place in the sun for 2 or 3 days or until the sirup has jellied. Take inside at night, and after each day's sunning turn the berries over. Without reheating, put the preserves into hot sterilized jars and seal.

TOMATO PRESERVES

Select firm, small, yellow or red pear-shaped tomatoes. Wash and drain. If a tomato preserve without skins is desired, dip the tomatoes into boiling water, then into cold water, and remove the skins before starting the preserving process. The tomatoes must then be handled with extra care to prevent their going to pieces. To each pound of tomatoes allow three-fourths cup of water, three-fourths pound of sugar, one-fourth lemon thinly sliced, and one piece of gingerroot. Boil the lemon for 5 minutes in part of the water. Boil the remainder of the water with the sugar for 5 minutes to make a sirup. Add the tomatoes, the gingerroot, the lemon, and the liquid in which the lemon was cooked. Boil until the tomatoes are clear and the sirup somewhat thick. Remove the scum; then pour the preserves at once into hot sterilized jars and seal.

WATERMELON PRESERVES

Select thick watermelon rind and trim off the outer green skin and the pink flesh, using only the greenish-white part. Cut into $\frac{1}{2}$ or 1-inch cubes and weigh. For each 4 pounds of the prepared rind, prepare 2 quarts of lime water containing 2 tablespoons of lime (calcium oxide). Let the melon stand in the limewater for 1 hour to make it crisp. Drain and place in clear water for 1 hour. Drain and boil for $1\frac{1}{2}$ hours in fresh water. Drain again.

To each 4 pounds of the prepared watermelon rind weighed before the lime-water treatment, allow 4 quarts of water, 4 pounds of sugar, 2 lemons thinly sliced, and, if desired, 4 small pieces of gingerroot. Boil the lemon for 5 minutes in one-half cup of the water. Boil the rest of the water with the sugar for 5 minutes to make a sirup. Add the watermelon and the gingerroot to the sirup. Boil for about 1 hour. When the sirup thickens, add the lemon and the water in which it was cooked. Continue to boil, stirring constantly, until the sirup is somewhat thick and the melon is clear. Pack at once into hot sterilized jars and seal.

MARMALADES

A marmalade is a jellied fruit product which holds suspended within it all or part of the fruit pulp and the sliced peel. It is prepared from pulpy fruits, preferably those that contain pectin. Citrus fruits are especially desirable because of their flavor and pectin content.

AMBER MARMALADE

Select an orange, a grapefruit, and a lemon—each smooth, thick-skinned, and free from blemishes. Remove the peel, slice it very thin, add a quart of cold water, and parboil for 5 minutes. Drain off the water, add a quart of fresh water, parboil again, and drain. Add water a third time and parboil.

Cut the fruit pulp into thin slices and remove the seeds and rag. Combine the sliced pulp with the drained parboiled peel. To each pressed measure of this mixture of fruit pulp and parboiled peel, add twice that quantity of water and boil rapidly for about 40 minutes. Then weigh or measure this mixture and to it add an equal weight or measure of sugar. Add an eighth of a teaspoon of salt.

Boil the fruit mixture and the sugar rapidly for 25 minutes, or until it thickens and becomes amber-colored. Stir the mixture as it cooks down, to prevent scorching. Let the marmalade stand in the kettle long enough for the shreds of peel to distribute themselves uniformly throughout the jellied juice—that is, until it is slightly cooled. Stir and pour into hot sterilized jars and seal; or pour into hot sterilized jelly glasses and cover with paraffin.

SOUR, OR SEVILLE, ORANGE MARMALADE

Use 2 pounds of sour oranges (about 6 medium sized), 2 quarts of water, 3 pounds of sugar, and one-half teaspoon of salt. Select from the oranges two with clear skins and remove the peel. Slice the peel very thin and cover with water. Boil until tender, adding more water as it boils away. Change the water frequently if the bitter flavor is objectionable.

Peel the other oranges, discarding the peel. Boil the pulp in the 2 quarts of water until very soft and then strain through a bag with pressure. Re-strain without pressure. Mix this juice with the drained peel, the sugar, and the salt, and boil until the jelly stage is reached. Let stand in the kettle until slightly cool, then stir, and pour into hot sterilized jars and seal; or pour into hot sterilized jelly glasses and cover with paraffin.

This method gives a clear jelly with small pieces of peel distributed through it.

SWEET ORANGE MARMALADE

Select four oranges and four lemons with smooth thick skins free from blemishes. Limes may be substituted for all or part of the lemons.

Wash the fruit, remove the peel, and slice it very thin. Cover the sliced peel with cold water and boil until tender, adding more water as it boils away. Change the water frequently if the bitter flavor is objectionable. Cut the fruit pulp into thin slices, and remove the seeds and rag. Combine the sliced pulp with the parboiled peel. To each pressed measure of this mixed fruit pulp and parboiled peel, add twice the quantity of water, and one-eighth teaspoon of salt. Boil rapidly for 25 minutes. Then weigh or measure this mixture and to it add an equal weight or measure of sugar. Boil for 15 minutes or until the jelly stage is reached. Allow the marmalade to cool slightly, stir, and pour into hot sterilized jars and seal; or pour into hot sterilized jelly glasses and cover with paraffin.

GREEN TOMATO MARMALADE

Wash green tomatoes, trim, and cut into small pieces or slices. To 4 pounds of the prepared tomatoes allow 2 pounds of sugar, one-half teaspoon of salt, and 5 lemons. Remove the peel of the lemons, cut it into thin slices, and boil for 5 minutes in 1 cup of water. Discard the water and repeat the parboiling if the bitter flavor in the rind is not desired. Slice the lemon pulp and remove the seeds.

Combine the tomatoes, sugar, salt, sliced lemon, and drained peel. Heat slowly and stir until the sugar is dissolved. Continue stirring and boil for 1 hour, or until the mixture is somewhat thick and the fruit clear. Pour at once into hot sterilized jars and seal.

JAMS

Jams are made from crushed fruits cooked with sugar until the mixture is more or less homogeneous and thick. Well-ripened, yet sound berries and soft-fleshed fruits like apricots, peaches, and plums make good jam. The standard proportion of sugar varies from $\frac{3}{4}$ to 1 part by weight of sugar to 1 part by weight of the prepared fruit.

APRICOT OR PEACH JAM

Wash the fruit carefully; then dip it into boiling water for about half a minute or until the skins slip easily. Plunge it at once into cold water for a few seconds, remove the skins, cut the fruit into halves, and discard the pits. To each pound of prepared apricots allow three-fourths of a pound of sugar and 2 table-spoons of lemon juice. To each pound of the peaches allow $\frac{3}{4}$ to 1 pound of sugar and omit the lemon juice. Crush the fruit, combine with the sugar in alternate layers, and let stand until some of the juice is extracted, that is about 3 or 4 hours. Then heat slowly until the sugar is dissolved, stirring meanwhile. Bring to boiling and cook, stirring constantly, until the fruit is clear and the jam somewhat thick. Pour into hot sterilized jars and seal.

BLACKBERRY AND OTHER BERRY JAM

Wash the berries carefully, drain, and remove the caps and stems. To each pound of the prepared fruit allow an equal weight of sugar. Crush the berries and bring slowly to boiling, stirring constantly. Add the sugar and boil until the fruit mixture has thickened to jellylike consistency. Stir throughout the cooking. Pour into hot sterilized jars and seal.

If the seeds in blackberries and black raspberries are objectionable, boil the fruit for a few minutes, then put through a fine sieve to remove the seeds before weighing the fruit and adding the sugar.

CURRENT AND RED RASPBERRY JAM

Wash and drain the fruit. Remove the currants from the stems. Combine 2 pounds of currants with 1 pound of red raspberries, and crush. Add an equal weight of sugar. Heat slowly until the sugar is dissolved, stirring constantly. Continue stirring while cooking for 10 to 15 minutes, or until the jelly stage is reached. Pour into hot sterilized jars and seal.

PLUM JAM

Select plums of a tart variety. Wash the fruit and drain. To each pound of fruit allow three-fourths of a pound of sugar and 1 cup of water. Boil the plums in the water for 10 to 15 minutes, or until the skins are tender. Add the sugar and stir while boiling until the jelly stage is reached. Pour into hot sterilized jars and seal.

STRAWBERRY AND PINEAPPLE JAM

Wash the strawberries, drain, and remove the caps. Wash the pineapple and remove the top. Cut the pineapple into half-inch slices. Pare the slices, remove the eyes, then cut into half-inch cubes. Prepare 2 pounds of strawberries for every pound of pineapple.

For each 2 pounds of strawberries, use $1\frac{1}{2}$ pounds of sugar, and for each pound of pineapple, 1 pound of sugar. Heat slowly the pineapple and its equal weight of sugar, stirring until the sugar is dissolved. Then bring to a brisk boil and cook for 10 minutes, stirring constantly. Add the strawberries and their quota of sugar. Stir while boiling for 15 to 20 minutes or until the jam is somewhat thick. Pour into hot sterilized jars and seal.

STRAWBERRY AND RHUBARB JAM

Wash the strawberries, drain, and then remove the caps. Cut young tender rhubarb into inch pieces, taking care not to remove the skin.

For each pound of strawberries use a pound of rhubarb. To each 2 pounds of the combined fruits, allow $1\frac{1}{2}$ to 2 pounds of sugar. Cover the rhubarb with a part of the sugar and allow it to stand an hour or two to extract the juice. Crush the strawberries, mix with the remaining sugar, and combine with the rhubarb. Heat slowly until the sugar is dissolved, stirring meanwhile. Continue the stirring while boiling 15 to 20 minutes or until the jam is somewhat thick. Pour into hot sterilized jars and seal.

CONSERVES

Conserve are jamlike products which contain a mixture of fruits, generally including oranges or lemons and raisins, and often nuts.

CRANBERRY CONSERVE

Pick over the cranberries and discard any that are specked or soft. For 2 pounds of sound cranberries use 1 cup of raisins, 2 oranges, 3 cups of sugar, one-fourth teaspoon of salt, and 1 pint of water. Wash the berries and the raisins. Peel the oranges and discard the seeds. Combine the fruits and the orange peel, and chop.

Add the sugar, salt, and water. Boil, stirring constantly, for about half an hour or until the jelly stage is reached. Pour at once into hot sterilized jelly glasses and seal with paraffin or put into glass jars and seal.

GRAPE CONSERVE

Use slip-skin grapes such as the Concord. Wash and drain the grapes and then remove them from the stems. To 4 pounds of the prepared grapes allow 2 pounds of sugar, 1 cup of seedless raisins, 1 orange, 1 cup of nut meats, and one-half teaspoon of salt.

Slip the skins from the grapes and keep them separate from the pulp. Peel the orange and discard the seeds. Chop the orange pulp and peel fine. Also chop the nuts fine.

Boil the grape pulp, stirring constantly, for about 10 minutes, or until the seeds show. Press through a sieve to remove the seeds. To the grape pulp add the sugar, the raisins, the orange, and the salt. Boil rapidly, stirring to prevent scorching, until the mixture begins to thicken. Add the grape skins and boil for 10 minutes longer or until somewhat thick. Stir in the chopped nuts, pour at once into hot sterilized jelly glasses or glass jars, and seal.

RHUBARB CONSERVE

Select young, tender rhubarb, and wash, drain, and weigh it. To each pound of rhubarb allow 2 pounds of sugar, 1 orange, 2 lemons, 1 cup of blanched almonds, and one-fourth teaspoon of salt.

Without removing the skin, cut the rhubarb into small pieces. Remove the peel from the orange and the lemons, parboil it for 5 minutes in 1 cup of water, then drain. Discard the seeds from the orange and the lemons and chop the pulp and the parboiled skins fine. Chop fine the blanched almonds.

Combine all the ingredients except the almonds. Heat the mixture slowly until the sugar is dissolved. Boil rapidly, stirring constantly, until somewhat thick. Add the almonds, pour at once into hot sterilized jelly glasses or into glass jars and seal.

FRUIT BUTTERS

For fruit butters the pulped fruit is cooked with sugar until the mixture has a homogeneous thick consistency that is soft enough to spread easily when cold.

The fruits most commonly used for butters are tart apples, apricots, grapes, peaches, pears, plums, and quinces. Apple butter made with cider has an especially good flavor. Other combinations are apples and grape juice, apples and plums, and apples and quinces, to give desirable blendings of flavor and color.

Use only sound, ripe fruit or firm portions of windfalls or culls. Wash the fruit thoroughly and prepare it as follows:

Apples: Pare and slice. Use equal measures of fruit and cider, or a 50-50 mixture of cider and water.

Apricots and peaches: Scald; remove skins and pits. Crush fruit and cook in own juice.

Grapes: Remove from stems, crush, cook in own juice.

Pears: Quarter; remove stems but not cores and skins. Add half as much water as fruit.

Plums: Crush and cook in own juice.

Quinces: Cut into small pieces, and remove blossom ends but leave cores and skins. Add water, using from one-half to equal quantities of water to fruit.

Cook until the fruit is soft, stirring constantly. Press through a colander, then through a fine sieve to remove all fibrous material and give a smooth consistency. The quantity of sugar varies according to taste, but the usual proportion is half as much sugar as fruit pulp. Add one-fourth to one-half teaspoon of salt to each gallon of butter. Boil rapidly and stir constantly to prevent burning.

As the butter cooks down and becomes thicker reduce the heat to prevent spattering. When the butter is thick, test by pouring a small quantity on a cold plate. Cook until no rim of liquid separates around the edge of the butter.

Stir in spices as desired; for example, 1 to 2 teaspoons of mixed ground spices to the gallon of butter. Use only fresh spices and just enough to give a delicate flavor without obscuring the natural fruit flavor. Or if a light-colored butter is desired, add whole spices tied loosely in a cheesecloth bag while the butter is cooking.

Pour the butter while boiling hot into sterilized containers and seal.

WAYS TO STRETCH SUGAR IN JELLIES, JAMS, PRESERVES

The sugar in jellies, jams, and preserves is not only for sweetening, it also helps to preserve the fruit and to give each product its own proper consistency. Here are two ways of reducing the sugar somewhat in the recipes for jellies, jams, and preserves in this publication:

1. **Use smallest amount of sugar suggested.**—Most of the jelly recipes call for three-fourths to one part of sugar for every part *by measure* of fruit juice. In each case use three-fourths part of sugar to one part of juice.

For *jams* and *preserves* most recipes call for equal parts *by weight* of sugar and fruit. Three-fourths as much sugar makes a satisfactory preserve.

2. **Replace part of sugar with honey or corn sirup.**—If you use honey, the product will be as sweet as one made with all sugar. Jams, jellies, and preserves made with corn sirup as part of the sweetening will be slightly less sweet than those with all sugar.

Apply these two rules to jellies and preserves as follows:

JELLIES

With less sugar.—Use three-fourths cup sugar to each cup fruit juice. Or in the height of the canning season, can fruit juice without sugar, to be made into jelly later when there are fewer demands on the family sugar (p. 7).

With part honey.—Replace up to one-half the sugar called for with an equal measure of honey.

With part corn sirup.—Replace up to one-fourth the sugar called for with an equal measure of corn sirup.

If you use either part honey or part corn sirup, cook the mixture slightly beyond the jelly stage (p. 6).

PRESERVES

With less sugar.—Cut down the sugar to three-fourths pound for every pound of fruit. Note that here the sugar is measured by weight rather than cupfuls. One pound of refined white sugar is about two cups. Fruits vary in weight, but in general a pound of freshly prepared fruit measures about 3 cups. Three-fourths of a pound of sugar is one and one-half cups.

You can make a satisfactory preserve with one cup sugar to three cups fruit. You will get a good fruit flavor but a somewhat thinner sirup than in the usual preserve. Be sure the product is tightly sealed.

With part corn sirup or honey.—Replace up to one-half the sugar called for in the recipe with either corn sirup or honey. Thus if two cups of sugar are called for, replace one of them with one cup of sirup or honey, as it takes only this much to equal a cup of sugar.

Example: For each 4 pounds of strawberries (12 cups), the recipe would call for 3 pounds of sugar (6 cups), but to make the sugar go further you may use instead 3 cups of sugar and 3 cups of sirup or honey.

JAMS

With less sugar.—Cut down the sugar to three-fourths pound for every pound of fruit, as for preserves.

With part honey or corn sirup.—You can replace up to one-half the sugar with honey or corn sirup, as for preserves. But if a jellied juice is desired, do not substitute corn sirup for more than one-fourth of the sugar.